IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF   Confirmation No.: 2993

SCHEIBERLICH et al.   Group Art Unit: 2851

Appln. No.: 09/827,350   Examiner: H. NGUYEN

Filed: April 6, 2001

Title: LITHOGRAPHIC APPARATUS, DEVICE MANUFACTURING METHOD, AND DEVICE MANUFACTURED THEREBY

September 2, 2003
September 1, 2003 (Holiday)

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REQUEST FOR RECONSIDERATION AFTER FINAL REJECTION

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated May 1, 2003, reconsideration and allowance of the present application based on the following remarks are respectfully requested.

By this Amendment, claims 1-17 are pending. Claims 1-15 have been allowed.

Claims 16 and 17 were rejected under 35 U.S.C. §102(e) over Miyachi, U.S. Patent No. 6,400,456. Applicants respectfully traverse this rejection because Miyachi does not disclose every feature of the rejected claims.

For example, claim 16 recites a lithographic projection apparatus comprising, among other elements, a time domain filter connected between the level sensor and the servo system for filtering the position signal. Independent claim 17 recites a method of manufacturing a device comprising, among other features, time domain filtering the position signal before it is used by the servo system to control the position of the object.

In contrast to the claimed filter recited in independent claim 16, Miyachi discloses a lithographic projection apparatus in which an arithmetic section of a main control system serves as a filter means directed to focus range control. More specifically, the arithmetic section of Miyachi generally eliminates components having a specific wavelength for

eliminating disturbance caused by such wavelengths during focus range control (see col. 14, line 1 to col. 15, line 4). However, the arithmetic section/filter means of Miyachi filters signals in spatial domain, not the time domain as recited in independent claim 16 (col. 12, lines 26-28). See Fig. 9 along with its description in col. 6, line 48 of Miyachi which states "filtering is performed for an aggregate of focus positions measured in the embodiment in a spatial frequency range." Additionally, col. 14, line 55 of Miyachi states how to generalize cutoff spatial frequencies using mathematical formulas and col. 14, line 62 to col. 15, line 4 further describes the filter of Miyachi on the spatial frequency range. Also see col. 15, lines 33-41 of Miyachi for further teaching of filtering on the spatial frequency range. Moreover, col. 12, lines 26-28 of Miyachi state "the above operation [relating to servo control] is repeatedly performed at a certain interval in synchronization with the position of the stage on which the substrate 15 is placed in the scanning direction," which clearly indicate that Miyachi performs spatial filtering and not time domain filtering as claimed. That is, Miyachi is directed to the use of a spatial domain filter that is particularly adapted to correct for errors resulting from spatial characteristics of the scanning slit (see col. 14, lines 17-26). In contrast, the present invention uses a time domain filter filtering to correct errors in a transfer function of the level sensor. Thus, the arithmetic section/filter means of Miyachi is used for low-pass filtering in the spatial domain and is not a time domain filter connected between the level sensor and the servo system for filtering the position signal as recited in claim 16. Furthermore, Miyachi's apparatus does not filter a position signal in the time domain before it is used by the servo system to control the position of the object as recited in independent claim 17. Thus, the filter means of Miyachi is not a filter, as recited in independent claim 16, nor does Miyachi disclose the claimed method of manufacturing, as recited in independent claim 17. Accordingly, Applicants respectfully request withdrawal of this rejection of claims 16 and 17.

Claims 16 and 17 were rejected under 35 U.S.C. §103(a) over van der Werf, U.S. Patent No. 5,191,200, in view of Miyachi. Applicants respectfully traverse this rejection because the combination of van der Werf and Miyachi does not teach every feature of the rejected claims.

The Office Action admits that van der Werf fails to disclose a time domain filter or time domain filtering as claimed and relies on Miyachi for its disclosure of the arithmetic section or filter means. However, for at least the reasons set forth above, Miyachi does not disclose the claimed filter recited in independent claim 16 or the claimed filtering recited in

independent claim 17. Thus, Miyachi does not remedy the deficiencies of van der Werf with respect to the filter recited in independent claim 16 or the filtering recited in independent claim 17. Even if Miyachi could be combined with van der Werf, which Applicants do not concede, the combination of van der Werf and Miyachi would not teach a filter as recited in independent claim 16 or the filtering recited in independent claim 17. Accordingly, Applicants respectfully request withdrawal of this rejection of claims 16 and 17.

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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